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PALEARCTIC SPECIES OF THE GENUS *COELOSIA* WINN. (DIPTERA, FUNGIVORIDAE)

By A. A. Stackelberg.

(*Zoological Institute, Academy of Sciences, Leningrad.*)

Key to the species.

1 (6). Veins m_{1+2}, m_3, cu_1 and cu_2 [1] with macrotrichia.

2 (3). Sc_2 present. Mesonotal and scutellar bristles black. Basal section of rs oblique. Middle tibiae of the male in basal half slightly swollen, with an oval bare area.—Basal joints of antennae yellow, flagellum black. Mesonotum black, not shining; humeral callus yellow; pleurae brownish-yellow. Legs long. Wings tinged slightly brownish. Abdomen black.—N. Russia: Leningrad province (*Stackelberg*) . . . . . *C. thoracica* Winn.

3 (2). Sc_2 absent. Mesonotal and scutellar bristles yellow. Basal section of rs more or less perpendicular to m_1. Middle tibiae of the male simple.

4 (5). Dorsal plate of hypopygium (9th tergite) narrowly triangular. Stylus at tip with long and narrow appendage, in apical part covered with short bristly hairs. Fork-stem of m as long as rm or slightly longer. Cu-fork shorter and broader. Antennae short with yellow basal joints. Thorax brownish-yellow, disc of mesonotum blackish, or thorax all black (in specimens from North Russia). Legs yellow, tarsi brownish. Wings nearly hyaline. Abdomen black, sometimes with yellow lateral spots on 2nd–4th tergite. Wing 4 mm.—Russia: Leningrad province (*Stackelberg*), Kola peninsula (Chibinä: *Fridolin*), N.W. Siberia (distr. Obdorsk: *Fridolin*) . . . . *C. tenella* Zett.

5 (4). Dorsal plate of hypopygium (9th tergite) short and broad, nearly quadrangular, with right distal margin. Stylus in apical part of the median margin only with a short appendage. Fork-stem of m $1\frac{1}{2}$ times as long as rm. Cu-fork longer and narrower.—Antennae black, with yellow basal joints. Thorax with mesonotum yellow or brownish-yellow, rarely blackish. Mesonotal and scutellar bristles yellow. Legs yellow; front tarsi elongated. Wings nearly hyaline. Abdomen black with more or less distinct yellow lateral spots on 2nd–4th tergite or all black. Wing 4 mm.—N. Russia: Leningrad province (*Stackelberg*), Kola peninsula (Chibinä: *Fridolin*) *C. truncata* Lundstr.

(1). Veins m_{1+2}, m_3, cu_1 and cu_2 bare, without macrotrichia.

(8). Sc bare, without macrotrichia. Long bristles on lateral parts of mesonotum and scutellum black. Body clearly yellow.—Antennae blackish-brown with basal joints yellow. Thorax yellow, less shining. Legs yellow, tarsi brownish; front tarsi long. Abdomen yellow. Stylus long, more than twice as long as broad. Dorsal plate of hypopygium (9th tergite) broadened in the middle. Wing 4 mm.—Russia: N. Ural (*Fridolin*) . . . . . *C. flava* Staeg.

(7). Sc in apical half with macrotrichia. Long bristles on lateral parts of mesonotum and scutellum normally yellow. Body greyish—or brownish-yellow.

[1] Wing-venation after Hendel-Beier.

9(10). m-fork-stem below to the base of rm bare without macrotrichia. Dorsal plate of hypopygium (9th tergite) simple, apically narrowed with right distal margin, without knife-like appendages.—Antennae black with basal joints yellow. Thorax brownish-yellow; mesonotal and scutellar bristles yellow. Legs yellow, tarsi brownish-black; front tarsi of the male very long. Wings nearly hyaline. Abdomen black. Wing 3·5 mm.—N. Russia: Leningrad province (*Stackelberg*) . . . . . *C. silvatica* Landr.

10 (9). m-fork-stem below to the base of rm with macrotrichia. Dorsal plate of hypopygium on the apical margin with two or four black strongly sclerotised knife-like appendages.

11(12). Dorsal plate of hypopygium (9th tergite) on the distal margin with two black strongly sclerotised knife-like appendages (figs. 1, 2). Larger species: wing 4·5 mm. First flagellar joint yellow.—N. Russia: Leningrad province (*Stackelberg*) . . . . *C. bicornis* sp. n.

12(11). Dorsal plate of hypopygium (9th tergite) on the distal margin with four black strongly sclerotised appendages (figs. 5, 6). Smaller species: wing 3·5 mm. First flagellar joint mainly black.—Kamtchatka (*Schmidt*) . . . . . *C. quadricornis* sp. n.

Coelosia bicornis sp. n.

Abdomen narrow and moderately long. Hypopygium very large. Dorsal plate of hypopygium (9th tergite) with two black knife-like appendages (fig. 1).

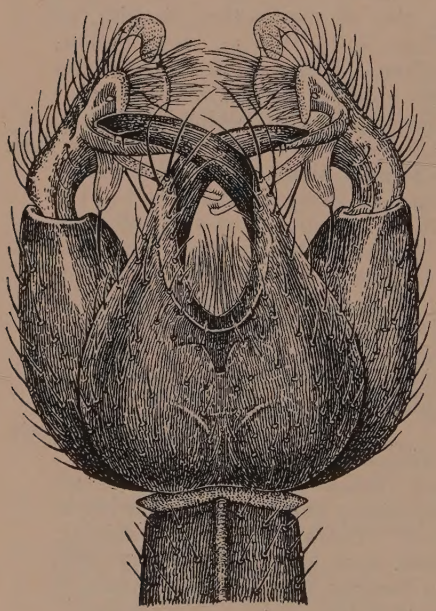

Fig. 1.—*C. bicornis* sp. n. ♂. Hypopygium from above.

Fig. 2.—*C. bicornis* sp. n. ♂. Hypopygium from below.

Male. Head black, slightly dark grey pollinose. Palpi yellow to brownish-yellow. Antennae black; basal joints, 1st and 2nd flagellar joints mainly yellow. Thorax brown; mesonotum slightly shining, with 3 broad blackish-grey longitudinal stripes. Humeral

callus and lateral parts of mesonotum yellow; propleura and pteropleura dark yellow. Mesonotal and scutellar bristles pale yellow. Coxae and legs yellow, tarsi brownish; first joint of front tarsi slightly shorter than front tibiae. Claws small, with a small basal tooth. Empodium small. Wings nearly hyaline or very slightly tinged brownish. Costal vein reaches to about ½ of the distance from m_1 to m_{2a}. Sc ending slightly before rs. Basis of m = fork beyond the level of rs. Cu = fork moderately long. Apical half of sc, all r_{1+2} and m_1 above, r_{1+2} and m_1 below only in the apical half and m = stem below only with macrotrichia. m_{2a}, m_{2b}, cu, cu_{1a}, cu_{1b} and an without macrotrichia. Halteres

FIG. 3.—*C. bicornis* sp. n. ♂. Stylus from above.

FIG. 4.—*C. bicornis* sp. n. ♂. Stylus from below.

whitish. Abdomen black with more or less large yellow lateral spots on 2nd–4th tergite. Hypopygium (figs. 1, 2) very large, yellow. Dorsal plate of hypopygium (9th tergite) distally in the middle with moderately deep excision; lateral edge of plate with long black strongly sclerotised knife-like appendage. Stylus (figs. 3, 4) irregularly triangular, with obtuse distal margin, covered with long brownish bristly hairs. Wing 4·5 mm.

N. RUSSIA: Leningrad province—Tolmatshevo, Luga distr., 28.viii.1937 (3 ♂, *Stackelberg*). Type in the Collection of the Zoological Institute, Academy of Sciences, Leningrad.

Coelosia quadricornis sp. n.

Abdomen narrow and moderately long. Hypopygium very large. Dorsal plate of hypopygium (9th tergite) with four black knife-like appendages (figs. 5, 6).

Male. Head black, pale grey pollinose. Palpi dark yellow to brown. Antennae black; basal joints and basal part of first flagellar joint yellow. Thorax dark brown. Mesonotum dark yellow with 3 broad black longitudinal stripes, slightly greyish pollinose; pleura grey pollinose. Mesonotal and scutellar bristles pale yellow. Coxae and legs pale yellow, tarsi brownish to blackish. First joint of front tarsi slightly shorter than front tibia. Claws small, with a small basal tooth. Empodium small. Wings nearly hyaline or very slightly tinged brownish. Costal vein reaches to the middle of the distance

from m_1 to m_{2a}. Sc ending slightly before rs. Basis of m = fork distinctly beyond level of rs. Cu = fork moderately short. Apical half of sc, r and m_1 above and below and m-stem only below with macrotrichia. M_{2a}, m_{2b}, cu, cu_{1a}, cu_{1b} and an bare without macrotrichia. Halteres whitish. Abdomen black. Hypopygium (figs. 5, 6) large, yellow.

FIG. 5.—*C. quadricornis* sp. n. ♂. Hypopygium from above.

FIG. 6.—*C. quadricornis* sp. n. ♂. Hypopygium, lateral view.

Dorsal plate of hypopygium (9th tergite) distally in the middle with moderately deep excision; lateral edge of plate with two long, black, strongly sclerotised knife-like appendages. Stylus two-armed, covered with moderately long dark hairs. Wing 3·5 mm.

KAMTCHATKA: Shiveljutsh, 27.viii.1910 (2 ♂, *Schmidt*). Type in the Collection of the Zoological Institute, Academy of Sciences, Leningrad.

STRAY NOTES ON EASTERN CARABIDAE (COLEOPTERA)—I

By H. E. Andrewes, F.R.E.S.

During the past twenty or thirty years there has passed through my hands a large number of typical specimens of species belonging to foreign collections, sometimes unique, and not represented either in my own collection or in that of the British Museum. The original descriptions of these species were frequently inadequate, and in such cases I often thought it desirable for my own future guidance either to prepare a re-description of the species, or to make such notes as appeared necessary in amplification of the original one. In view of the widespread damage caused during the recent war, I now think it may prove of use if I give these notes a more permanent form, and in this short paper I am dealing wth a few of the species and one genus, described by H. W. Bates in 1892 (*Ann. Mus. Stor. nat. Genova* **32** : 267–428), from the collection formed in Burma by Leonardo Fea. The types of all these are in the Genoa Museum.

Hemichlaenius microspilus Bates (p. 308).

Head with the ligula wide, moderately sulcate beneath along median line, bisetose at apex, paraglossae rather narrow, extending beyond ligula; outer lobe of maxillae bilobed; eyes rather flat. *Prothorax* a little narrower at base than at apex, base faintly emarginate, apex truncate, but with projecting angles, sides gently reflexed, especially behind; median line fine, entire, basal foveae elongate, moderately deep. *Elytra* with the striae entire, scutellary striole rather long and fine, surface minutely and fairly closely punctate, with a granular microsculpture. Legs with the protarsi (♂) densely spongiose beneath, as in *Chlaenius* Dejean. In appearance, very near *Chlaenius melanopus* Andrewes, the type of which is available for comparison in the British Museum. Both maxillae and mandibles a little sharper and longer, the scrobes of the latter similar in form. Prothorax more contracted behind, where the sides are rather more reflexed, base less emarginate, surface more opaque and rather more coarsely sculptured. Elytra more convex, forming a more elongate and narrower oval, much more pointed behind, intervals less flat at sides and apex, the punctures less evidently asperate in front, the common spot narrower and very vague. *Hemichlaenius* Bates appears to be only a section of *Chlaenius* Dejean.

Dicranoncus (*Monacanthonyx*) *pocillator* Bates (p. 367).

Colour ferruginous, elytra brown, lateral margins of prothorax and elytra flavous.

Head small, convex, frontal impressions small, shallow, and rounded, eyes rather large, but flat, forming, with genae, a continuous curve to the neck, which is lightly constricted at sides, antennae long and slender, but not quite reaching middle of elytra. *Prothorax* rather flat, nearly two-thirds wider than head, about a third wider than long, sides of base oblique, sides bisetose, both pores a little removed from margin, rather widely explanate and moderately reflexed, rounded in front, nearly straight behind, hind angles reflexed and strongly rounded; median line fine, the area round it depressed, transverse impressions slight, basal foveae moderately deep, surface impunctate. *Elytra* elongate, oval, two-fifths wider than prothorax, four-fifths longer than wide, base emarginate, the border sharply angulate at shoulder, slightly sinuate on each side near and minutely mucronate at apex; striae fairly deep, impunctate, intervals slightly convex, 3 with three pores at about a fifth, three-fifths, and four-fifths respectively, surface impunctate, depressed on each side of disk behind middle. Microsculpture of the elytra formed by slightly transverse meshes; none on the head and only traces of fine transverse lines on the prothorax.

Nearly allied to *D. cinctipennis* Chaudoir, but otherwise coloured. Head narrower and eyes flatter; prothorax with its sides more widely explanate and all the angles more rounded; elytra more deeply striate, the striae impunctate, the border forming a sharper angle at shoulder; claw joint similar, the tooth in both species smaller than in *femoralis* Chaudoir and *quadridens* Motchulsky.

I am at a loss to know why Bates should have thought it necessary not only to make a new genus for this species, but to put it into his "subfamily CTENODACTYLINAE," a group in which the claws are pectinate.

Colpodes muleyitus Bates (p. 372).

Colour black, elytra with a very faint purplish tinge, palpi ferruginous, antennae and legs brown.

Head small, convex, not much contracted behind, frontal impressions small but fairly deep, diverging behind, eyes not prominent, antennae not extending far beyond base of elytra, somewhat dilated at apex, maxillary palpi unusually long, joint 2 much dilated behind. *Prothorax* convex, a half wider than head and a fifth wider than long, base oblique at sides, front angles slightly rounded, hardly projecting forwards, sides bisetose, narrowly bordered and reflexed, rather strongly and almost evenly rounded from base to apex, hind angles obtuse, rounded, and reflexed, the pore on the margin; median line fine, transverse impressions distinct at middle, basal foveae deep, uneven, diverging forwards and continued to rather beyond middle, surface smooth on disk, punctate in the foveae, and very vaguely along sides. *Elytra* convex, oval, two-thirds wider than prothorax and two-fifths longer than wide, border forming an obtuse angle at shoulders, which are somewhat rounded, a slight emargination on each side before apex; striae impunctate, fairly deep and very clean cut, intervals slightly convex, 3 with three dorsal pores. Microsculpture of the elytra consisting in transverse lines, forming very wide meshes; the prothorax with similar but fainter meshes; the head with very faint isodiametric meshes. Underside smooth, metepisterna hardly longer than wide, last ventral segment ♀ with two marginal setae on each side; tarsal joints lightly bisulcate, joint 4 very moderately bilobed, joint 5 glabrous beneath.

The type seems at present to be unique.

The species is not much like any Indian one, but its form recalls *C. bengalensis* and *C. baconi* of Chaudoir from Sikkim, and, as Bates points out, his own *C. melittus* from Kashmir.

Colpodes caelitis Bates (p. 372).

Colour black, with faint aeneous reflections, elytra blue; palpi, antennae, and tarsi piceous brown.

Head rather strongly contracted behind, neck very faintly constricted, frontal impressions fairly shallow, diverging behind to eyes, which are moderately prominent, antennae rather short and stout, not extending far beyond base of elytra. *Prothorax* rather flat, cordate, nearly a half wider than head, rather more than a fourth wider than long, widest before middle, front angles moderately rounded, sides bisetose, narrowly bordered in front, widely explanate and reflexed, rounded in front, faintly sinuate behind, hind angles obtuse, reflexed, the pore on the border, just in front of the angle; median line fine, transverse impressions faint, basal foveae fairly deep, converging slightly near base, then diverging and continuing forwards parallel with margin nearly to front margin; surface smooth, finely, sparsely, and vaguely punctate in the wide lateral channels. *Elytra* rather flat, oval, nearly a half wider than prothorax, three-fourths longer than wide, shoulders fairly marked, border clearly emarginate on each side before apex, where there is a re-entrant

angle; striae moderately deep and finely punctate, intervals nearly flat, three dorsal pores on 3, surface impunctate, a slight depression on each side of disk before apex. Microsculpture of elytra formed by very wide meshes; that on prothorax visible chiefly at sides; faint isodiametric meshes on sides of head. Metepisterna elongate; meso- and metatarsal joints lightly bisulcate, joint 4 hardly more than deeply emarginate, joint 5 glabrous beneath.

This insect bears a close resemblance to the Malayan *C. saphyrinus* Chaudoir, but the prothorax is much more explanate at sides, and the elytra are without spines at the apex.

Aristolebia Bates (p. 428).

Type *Aristolebia quadridentata* Bates.

Head rather small, with very large hemispherical eyes, each occupying the whole side, close to buccal fissure; clypeus bisetose, labrum small, slightly transverse, sexsetose; gular suture deeply impressed in front, a single seta on each side; mentum with a sharp tooth in the sinus, lobes rounded at base and then with sides nearly straight to apex, where the epilobes, flattened and dilated, each form a blunt point; maxillae (apparently) setiferous at apex, but not clearly visible; mandibles short, but little curved and not very sharp at apex, without seta in scrobe; ligula, with which the paraglossae are fused, wide, truncate and bisetose beneath at apex; antennae not reaching much beyond base of prothorax, setose from joint 4, 1 stout and rather longer than 3, 2 very short, 3 and the remainder about equal in length. *Prothorax* nearly semicircular, slightly truncate in front, and with the base shortly lobed in the middle, front angles quite rounded, sides explanate, bisetose. *Elytra* rather flat, with square shoulders, truncate at apex, an elongate and very sharp tooth at each angle of truncature. Prosternal process with a single seta in the middle. Venter sparsely setose, segments with a tactile seta on each side of median line, last segment (♂) with two setae on each side. Mesotibiae (♂) bidenticulate on inner margin at apex, tarsi glabrous on upper surface, joint 4 deeply emarginate, almost bilobed, on two front pairs, the protarsi (♂) clothed beneath with loose, whitish scales, claws pectinate to apex. Body glabrous above and shiny.

Range.—Burma, Assam, China, Philippine Is., New Guinea, Australia.

Aristolebia quadridentata Bates (p. 428).

Colour flavous; head, a broad stripe down middle of prothorax, and elytra, except for a large spot on each towards base, black; palpi, clypeus, labrum, middle of side margin and extreme apex of elytra ferruginous.

Head flat, the front supraorbital pore very deep, a small shallow impression on each side of front, surface minutely and not very closely punctate, with some slight longitudinal striation on vertex. *Prothorax* strongly transverse, slightly convex, nearly a half wider than head, apex much contracted, truncate, sides widely explanate, very strongly rounded and slightly contracted before hind angles, which are a little obtuse but not much rounded, front seta at apical third, hind one just before the angle; median line strongly impressed, reaching extremities, front transverse impression visible at middle only, hind one deep, almost linear, terminating on each side in a small deep foveole, midway between centre of base and hind angle; surface minutely punctulate and finely strigose, smoother at sides. *Elytra* wide, convex at sides only, slightly dilated and rounded just behind middle, a little more than a half wider than prothorax, and about a half longer than wide, the striae well marked and finely punctulate, intervals flat, a little more convex towards base, 6 and especially 7 narrow and convex near base, 3 with two pores at a third and four-fifths respectively, 8 with a series of large, umbilicate, setiferous pores, more closely placed near base and apex; surface finely shagreened, and minutely but rather sparsely punctate, the rounded flavous spot covering intervals 2–6, its hind margin at about middle.

STRAY NOTES ON EASTERN CARABIDAE (COLEOPTERA)—II

By H. E. Andrewes, F.R.E.S.

In this second and concluding paper I am redescribing several unique types from the Brussels, Berlin and Genoa Museums, and adding such further notes as seem likely to be of use.

Dyschirius stenoderus Putzeys, 1873, *Ann. Soc. ent. Belg.* **16** : 13.

Brassy above, legs piceous, antennae, palpi, meso- and metatibiae, and tarsi dark ferruginous.

Head with the clypeus slightly convex, truncate behind, nearly straight in front, bordered, the lateral teeth somewhat rounded and projecting a good deal forward, clypeal suture deep, facial sulci deep, diverging behind, bounded outwardly in front by a slight ridge, surface with a few vague rugae. *Prothorax* subglobose, nearly a half wider than head, a little longer than wide, widest at basal fourth, border extending well beyond hind lateral pore; median line and transverse impression both fine, latter with a few longitudinal striae behind it, surface smooth. *Elytra* elongate-oval, but with rather square shoulders, not much wider than prothorax, very nearly twice as long as wide, base unbordered; striae moderately deep, and finely punctate, but much shallower and impunctate near apex, 1 and 2 on each side arising in a basal pore, 8 uninterrupted, formed by minute pores, deep close to apex, 2 apical pores, 1 post-humeral pore, distant from shoulder; intervals moderately convex, 1 somewhat raised, 3 with three pores adjoining stria 3. No microsculpture. Protibiae with apical digitation slightly curved, longer than spur, upper teeth only slightly developed.

Close to *D. lacustris* Andrewes, but larger, head longer, transverse impression of prothorax impunctate, elytra more coarsely sculptured, dorsal pores adjoining stria 3.

Length: 4·7 mm.

Shanghai (*Murray*). Type in the Brussels Museum.

Dyschirius ovicollis Putzeys, 1873, *Ann. Soc. ent. Belg.* **16** : 14.

Brassy above, legs piceous, antennae and tarsi dark ferruginous.

Head with the clypeus convex, triangular, truncate and narrowly bordered in front, lateral teeth also bordered, moderately prominent and rounded, connected with front by a narrow ridge, which interrupts the deep clypeal suture, facial sulci deep, diverging behind, a few vague rugae at sides, surface otherwise smooth, with a few minute punctures at back of vertex. *Prothorax* globose, a third wider than head, as long as wide, widest at middle, border extending to hind lateral pore; median line fine, transverse impression fairly deep, subcrenulate, surface smooth. *Elytra* ovate, with square shoulders, a third wider than prothorax, a half longer than wide, base unbordered; striae moderately deep and coarsely punctate on basal half, shallower and impunctate on apical third, 1 hardly deeper than the others, arising in a basal pore, 8 formed by one or two pores in front, but deep behind, two apical pores, three post-humeral pores, the hindmost very faint; intervals moderately convex, 1 raised, 3 with three pores on the interval. Protibiae with apical digitation curved, the others very slightly developed. No microsculpture.

Very near *D. nitens* Putzeys, but larger, the prothorax longer and widest at instead of

behind middle, elytral striae not nearly so deep, 8 indicated in front by a few small pores only, intervals much less convex, 1 raised.

Length: 2·7 mm.

Shanghai (*Murray*). Type in the Brussels Museum.

Lesticus (*Trigonotoma*) *obscurus* Castelnau, 1834, *Etudes Ent.*: 76.

Black, with a very faint violaceous tinge on the prothorax.

Head fairly smooth, neck clearly constricted, swollen behind, the constriction finely punctate, last joint of labial palpi elongate-triangular. *Prothorax* a sixth wider than long, with a finely and continuously crenulate border, widening behind, sides barely sinuate in front of the hind angles, which are slightly obtuse and not very sharp, basal foveae finely punctate, base distinctly wider than apex. *Elytra* elongate, four-fifths longer than wide, with fairly deep, finely punctate striae, intervals convex, especially outer ones, 3 with a pore at three-fifths, adjoining stria 2, border fine, not crenulate, obtusely angled at shoulder, reaching striole, moderately sinuate near apex. Sterna and base of venter punctate, metepisterna quite a half longer than wide, protarsi (♂) with three moderately dilated joints, joint 1 of metatarsi externally sulcate.

Java: 1 ex. in the Genoa Museum. The label is not in Castelnau's handwriting, but, as the specimen comes from his collection, it is presumably the type.

Tropidocerus indicus Chaudoir, 1878, *Bull. Soc. Nat. Moscou* **53** (11): 9.

Elytra dull, very dark aeneous, almost black. *Head* not contracted behind, neck tumid, frontal foveae short, linear, fairly deep, one or two irregular punctures on middle of front, clypeal suture distinct, eyes moderately prominent, antennae barely reaching base of elytra. *Prothorax* convex, cordate, about a third wider than head and a third wider than long, base bordered at sides only, wider than apex, sides presumably bisetose, though no setae are visible; front transverse impression (at middle only), median line, and basal foveae all well marked, a few very vague punctures near the front margin, basal area, especially the foveae, and marginal channel coarsely, but not very closely, punctate. *Elytra* convex, ovate, about a fourth wider than prothorax, a half longer than wide, sides hardly sinuate behind; striae deep, rather indistinctly punctate, intervals convex, the even a little wider than the odd ones, 3 with a small pore near apex. Microsculpture of the elytra isodiametric, none on head or prothorax. Mesosternum punctate along front margin only; sides of metasternum and the episterna with a few punctures. The mandibles are closed and difficult to see, but they are very blunt; the left one is hollowed out within and rather strongly obliquely striate on the inner side.

The type is in the Oberthür Collection, and I made these additional notes from it ten years ago. It was said to come from "North India," but I have seen no other specimens and it may prove not to be an Indian species at all.

Homalonesiota karawari Maindron, 1908, *Nova Guinea* (5) **2**: 295–6.

Ligula narrow at base, dilated and bisetose at apex, the setae distant from each other, paraglossae membranous, curved, rather narrow, rounded at apex, extending far in front of ligula, but not enveloping it; mentum with a fairly long, sharp, simple tooth, deeply depressed on each side of it, epilobes forming a blunt tooth on each side at apex of lobes, a seta on each side of tooth at base, two setae on each side of gula; mandibles curved and fairly sharp, not very long, no seta in the scrobe; maxillae almost invisible, but apparently

hooked at apex and ciliate within; palpi cylindrical, maxillaries with joint 4 a little longer than 3, rounded at apex, labials with joint 2 bisetose, 3 wanting; labrum small, truncate, sexsetose; clypeus truncate, bisetose, transversely depressed before middle; eyes flat, genae oblique, a space between eyes and buccal fissure, two supraorbital setae; antennae almost geniculate, pubescent from base of joint 4, 1 longer than 2 and 3 together, 2 short, the rest about equal, stout, joints much longer than wide, channelled at base on upper surface, apical joints strongly carinate beneath. *Colour* piceous black, base of antennae, mouth parts, and legs reddish. *Head* convex, wide, neck wide, clypeus with a very small emargination on each side at base, into which fits the incurved upper carina of mandibles, suture very shallow, furrows short but fairly deep, extending to clypeus, slightly divergent behind. *Prothorax* quadrate, rather flat, wider than head, not much wider than long, base bisinuate, apex emarginate, front angles rather sharp and prominent, sides bordered and reflexed, very gently rounded in front and sinuate behind, a seta at apical fourth and another on hind angles, which are slightly obtuse but sharp, impressions slight, but foveae fairly deep, elongate, linear, half-way between angles and middle, base bordered from angles to foveae, a few small punctures in foveae and marginal channels. *Elytra* flat, sides parallel, not much wider than prothorax, nearly twice as long as wide, base bisinuate, bordered, border forming a strong angle at shoulder, apex on each side very slightly sinuate; striae fairly deep, entire, faintly crenulate, intervals rather flat, convex at apex, 3 with a conspicuous pore about middle, adjoining stria 2, no striole, but stria 2 strongly impressed close to base, striae 1–2 and 7–8 all reaching apex, umbilicate pores on 8 large, more distant from each other at middle, epipleura finely channelled behind. Underside rather faintly punctate at sides, prosternal process simple, unbordered, metepisterna very long and narrow, ventral segments with a seta on each side, last one (♀) with two on each side. Legs slender, protibiae with one or two slight spines on outer margin near apex, tarsi with joint one a little longer than two and three together, the joints of meso- and metatarsi bisulcate. This insect at first sight looks like a very small, dull *Morion* Latreille, especially as regards its prothorax. The head, however, is quite different, the legs and antennae are more slender, the termination of the elytral striae quite dissimilar. It appears to be an aberrant form in the group Pterostichini.

Length: 10 mm. Width: 3 mm.

Type (♀) examined when in Mr. Guy Babault's collection in 1922, and therefore now no doubt in the Paris Museum. The type is a unique specimen.

Owing to the way in which the second joint of the antennae is bent back at right angles to the first it is difficult to ascertain whether or not it is excentrically articulated, but I think not; the mentum is not like that of *Abacetus* Dejean.

Morion Latreille 1810.

When a large number of specimens of the genus *Morion* Latreille is examined, the specific characters relied on by Chaudoir and Putzeys do not prove sufficiently constant. The sinuation of the outer margin of the lobes of the mentum in certain New Guinea species seems a good character. Otherwise the only fairly constant external feature seems to be the length of the border on the outer part of the anterior edge of the pronotum. This, when prolonged, gives (1) *orientalis* Dejean, when not prolonged, (2) *cucujoides* Walker. The widening out behind of the cephalic furrows seems quite illusory as a character for distinguishing *orientalis* from its allies. There are two main types under (1), viz. (a) *orientalis*, with wide prothorax, prominent front angles, and the elytral striae effaced towards apex. This is prevalent in the Malay region; (b) *walkeri* Putzeys, with a narrower prothorax, less

prominent anterior angles, and the elytral striae less effaced. This occurs throughout Ceylon and Continental India. In the Andaman Is., F.M.S., Siam, and Burma, various intermediate forms occur, including much smaller examples. Under (2), *cucujoides* is spread over India, Ceylon, Burma, F.M.S., and the Malay region. Along with the short border of the anterior margin of the pronotum goes a much deeper incision in the middle of the same part. The Xmas I. species is remarkable in having cephalic furrows which melt away behind, without any defined edge.

Galerita carinifrons L. W. Schaufuss, 1887, *Horae Soc. ent. ross.* **21** : 103.

Schaufuss compares his species with *orientalis* Schmidt-Göbel, which was evidently unknown to him, and the differences which he enumerates are largely fictitious.

The coloration is very similar. The head differs little, but in *carinifrons* the central carina on the front is a little sharper and more evident, the puncturation of the surface behind much coarser. The prothorax is similar in shape, but much more coarsely and less closely punctate, and consequently shinier, the median line and foveae a little more impressed, the former abbreviated at each end instead of being continued to margin. The elytra are a little shorter, dilated behind instead of nearly parallel-sided, the shoulders even more obliterated, the outer angles of the apical truncature more rounded; the primary carinae are more strongly developed and much more shiny, the punctures and minute tubercles between them and the second carinae rather fewer and a little more definite, the three punctures on interval 3 clearly discernible, the surface generally a little less dull.

Length: 20 mm. Width 6·25 mm.

South Celebes—Redescribed from the type in the Berlin University Zoological Museum.

Holcoderus (*Catascopus*) *elongatus* Saunders, 1863, *Trans. ent. Soc. Lond.* (3) **1** : 466.

Black: head greenish-blue, elytra blue, prothorax cupreous, antennae and palpi brown, legs piceous brown. *Head* moderately convex, frontal foveae wide and shallow, a carina on each side near eye, neck not constricted, eyes large, not very prominent, antennae short and slender, surface smooth. *Prothorax* quadrate, moderately convex, hardly wider than head, a third wider than long, base truncate, bordered, apex faintly emarginate, bordered at sides, each side formed by two nearly straight lines, meeting just before middle and forming an angle, at which there is a seta, one seta (right) and two setae (left) near front angles and also a seta at each hind angle, border very fine, hind angles right, not rounded; median line deep, unbordered, equally wide throughout, but contracted close to base and apex, basal impressions and foveae moderately impressed, surface rugose—punctate along all margins, nearly smooth, but faintly transversely striate on disk. *Elytra* moderately convex, sides nearly parallel, shoulders square, apex truncate and strongly biemarginate, a half wider than prothorax, and a half longer than wide, striae moderately impressed, clearly punctate in front, only finely crenulate behind, all reaching base, 3 to 6 not quite reaching apex, 7 curving round behind and nearly joining 1, 8 joining 7 behind; intervals moderately convex, 1 somewhat raised behind, 3 with four nearly equidistant pores, the two front ones adjoining stria 3, the two hind ones adjoining stria 2. Microsculpture of the elytra formed by a reticulation of moderately wide meshes; practically none on head or

prothorax. Underside uneven, some punctures on proepisterna; metepisterna elongate. Legs short and slender, each half-claw with about 3 minute teeth at middle.

Near *gracilis* Oberthür, but otherwise coloured and wider. Head with more distinct foveae and lateral carinae; prothorax with an angle quite close to middle of sides, median line not dilated in front; elytra much wider, striae finer and less clearly punctate, interval 7 wider and not inwardly carinate, 3 with four similar punctures.

Length: 9·0 mm. Width: 3·0 mm.

New Guinea: Dorey (Wallace), 1 ex. Redescribed twenty years ago from the type in the Berlin University Zoological Museum.

Key to the Indian species of the genus *Lasiocera*.[1]

1(2). Form short and wide, prothorax subglobose, showing the epipleura when viewed from above, puncturation very coarse but not close, interval 3 with three deep pores, the two front ones each surrounded by a depressed area, first joint of antennae and femora aeneous
malabarica Maindron.

2(1). Form relatively long and narrow, prothorax cordate, not showing epipleura from above, puncturation moderate and very close, interval 3 with three pores of moderate depth, the front one only surrounded by a slightly depressed area, first joint of antennae and femora ferruginous (at least in part).

3(4). Head moderately punctate, smooth on disk, or only faintly rugose, striae finer and less deeply impressed behind, legs generally flavous
orientalis Chaudoir.

4(3). Head moderately but closely punctate throughout, striae hardly less impressed behind than in front, apex of femora fuscous
coromandelica Maindron.

[1] The type of *orientalis* Chaudoir is in the Oberthür collection. With regard to the types of the other two species see Andrewes, 1933, *Ann. Mag. nat. Hist.* (10) **11**: 110.

ON *NESOSISYPHUS*, A NEW GENUS OF COPRINE BEETLES FROM MAURITIUS

By J. Vinson, F.R.E.S.

Curator, Mauritius Institute.

The fauna of the island of Mauritius, one of the three Mascarenes, has since the dawn of systematic natural history retained the attention of scientists, chiefly on account of the strange brevipennate birds, gigantic tortoises and large lizards, which formerly lived on the island. Though less spectacular, its invertebrate fauna is by no means less remarkable. The beetles, of which about six hundred species are known up to the present, are of particular interest on account of their high endemicity, sixty per cent being so far unknown from elsewhere. The occurrence of indigenous Coprine beetles on an oceanic island apparently purely of volcanic origin, which had no indigenous mammals, except bats, is by itself a puzzling fact. However, it appears that the connection between such beetles and mammals is not so intimate as was formerly supposed. There is now evidence that several species can live on bird excreta, and even on carrion.

Two of the insects forming the subject of this paper had hitherto been assigned to the genus *Sisyphus* Latreille. One was described by Alluaud in 1898 and the other by myself in 1939. Since then two others have been found in Mauritius, and will be described as new in the present paper. Quite recently M. G. Olsoufieff, the well-known Russian entomologist residing in Madagascar, who has acquired a first-class knowledge of the systematics of coprophagous beetles, informed me that he suspected that the genus *Sisyphus* was unsuitable for the Mauritian species. These were known to him only through their description, but after examining the material I sent, he maintained his opinion, and strongly suggested the erection of a new genus. On further study I reached the conclusion that this view was amply justified. The expert opinion of Mr. G. J. Arrow was also sought, and he very kindly replied that he considered the differences noticed as being of generic status. Further, he generously presented me with a copy of his fine book on the Coprinae of British India, which has been very useful to me. To both these gentlemen I am therefore much indebted, and I wish to express my grateful thanks to them.

I propose the name *Nesosisyphus* for the remarkable little Sisyphids under consideration. A noteworthy feature is that these beetles have no immediate relatives on the neighbouring lands; no Sisyphid is known from Madagascar, which has, however, a wealth of ball-rollers. The other islands of the Western Indian Ocean (Seychelles, Comoros, Chagos), and even Reunion and Rodriguez, the " sisters " of Mauritius, are devoid not only of Sisyphids, but of any Coprine. It is only in the more distant countries (Africa, India, Ceylon) that the nearest relatives, represented by *Sisyphus* species, exist. But, as will be seen hereunder, the divergence from these continental next-of-kin has been considerable.

Incidentally, it is interesting to note that there is in Mauritius another indigenous Coprine. It belongs to the genus *Phacosoma* Boucomont,[1] an Indo-Malayan genus whose western limit is Madagascar, where it is represented by two or three species only distantly related to the Mauritian one.

[1] *Phacosoma vinsoni* Paulian, 1939, *Bull. Soc. ent. Fr.* **44** : 68.

In the present paper I shall deal only with the systematic aspect of the genus *Nesosisyphus* and of its species. In a future study or studies I shall give an account of the biology of this genus, with a description of the early stages of development, as well as notes on collecting and rearing. It is also my intention to offer comments on the distribution and speciation of these curious beetles, as well as on the condition of the hind-wings which is affected by some obscure factor. In two of the species they are fully developed and used for flight, whereas in the remaining two they are atrophied. Attention has already been drawn to this particular question,[2] but new findings have considerably modified certain aspects of the problem. This reduction of the wings seems to be correlated with a reduction of the hind tarsi and of the eyes.

The material upon which this paper is based has been collected by myself or by my friend Mr. Raymond Mamet, to whom I tender my best thanks. The types of the new species will be deposited in the British Museum. Sets of paratypes will be found in the Mauritius Institute and in my collection.

Nesosisyphus gen. n.

Head with anterior margin of clypeus excised in the middle and bearing two or four teeth, the median pair more prominent and sharper than the lateral one. Mandibles of the usual coprine type, *i.e.* with a broad chitinous, striated base and apical part membranous and ciliate. Maxillae with lacinia and galea membranous, terminal joint of palpi elongate. Labial palpi with last two joints sub-equal in length and breadth, last joint ovoid; bristles borne by the joints only slightly longer than the joints. Ligula with a pair of long, narrow, ciliated lobes. Mentum roughly six-sided with the anterior margin slightly emarginate, bearing eight long setae, six on the apical region and two near the base. Epipharynx bearing a thorny brush-like structure in the middle. Ocular lobes fairly prominent, eyes visible on the upperside through two small oblique slits of variable dimension according to the species, the size of the eye being also variable. Antennae 8-jointed, 1st joint longest, 2nd globular, 3rd elongate, longer than 4th and 5th together, these very short, sub-equal.

Pronotum strongly and closely punctate, punctures oblique, confluent; sides nearly smooth, bearing a line connecting the posterior and anterior angles. Below this complete line there is a second one which is abbreviated towards the apex. A fine groove along the base and a deeply impressed longitudinal one on the posterior half.

Scutellum not visible. *Elytra* comparatively high and convex, with lateral margin not reduced towards apex, slightly and broadly emarginate after shoulders; sharply and deeply striate, each bearing nine striae with last one slightly abbreviated and close to margin, more or less finely punctate.

Hind-wings either fully developed, reduced or vestigial, according to the species.

Abdomen considerably compressed ventrally with only four segments visible beneath and six laterally, first one completely covered by the elytra. *Pygidium* short, triangular, broad at base, punctation simple. *Underside* with meso-metathoracic suture straight, part of metasternum between coxa and episternum strongly and grossly punctate; metathoracic episternum bearing a deeply impressed streak; mesothoracic epimeron strongly and grossly punctate with large punctures.

Legs with front tibiae tridentate externally and finely crenulate, bearing three fine longitudinal carinae; tibial spur long, curved downwards, tarsi short, a little longer than half length of tibia. Median legs long, about two-thirds length of hind pair, coxae longitudinal and separated by a distance equal to length of coxa, tibiae rugose and spinulose, shorter than tarsi, bearing two unequal spurs, one about half length of the other; first two

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[2] 1938, *Proc. R. ent. Soc. Lond.* (C) **3**: 46; 1939, *Proc. R. ent. Soc. Lond.* (B) **8**: 33.

joints of tarsi bearing a fringe of short hairs on the inner side. Hind legs very long, about twice length of body, inserted far back on account of the considerable development of the metasternum; trochanters small in both sexes, wedge shaped; femora with basal half forming a slender footstalk, distal half strongly dilated; tibiae more or less twisted, slightly broadened towards the tip, practically smooth and bearing only a few short hairs, tibial spur strong, about half length of metatarsus or shorter; tarsi either equal to, slightly longer or shorter than tibia, according to the species, first joint longest, bearing a fringe of short hairs opposite to the spur; claws simple.

Aedeagus with parameres or lateral lobes shorter than basal piece, distal part spout-shaped; internal sac provided with a long sword-like sclerotised structure, spirally coiled at one end, the other extremity sharp, apparently ended by a very thin membranous filament or duct.

Body glabrous or bearing short, sparse recumbent hairs; integument shiny.

Genotype : *Sisyphus vicinus* Vinson, 1939.

Closely allied to the genus *Sisyphus* Latreille but quite distinct. The main differences between the two genera are listed in the following table :—

Sisyphus Latreille.	*Nesosisyphus* Vinson.
Elytra comparatively flat, with lateral margin reduced towards apex, slanting upwards; striae superficial, 7 in number with a vestigial 8th.	Elytra convex, with lateral margin not reduced, slanting downwards; striae deep, 9 in number.
Prothorax generally with a sharply defined hollow lateral area; disc lightly punctured; punctures ocellate; median groove very light.	Prothorax without hollowed lateral area, bearing only a well-marked line; disc strongly punctured, punctures oblique; median groove deeply impressed.
Derm generally opaque; without metallic tinge.	Derm shining, generally with a metallic tinge.
Pygidium elongate, sub-ovate, with maximum width towards middle.	Pygidium comparatively short, triangular, with maximum width at base.
Hind tibiae arcuate, spinose and carinate.	Hind tibiae slightly twisted, smooth.
Average size comparatively large (4 to 12 mm.).	Average size smaller (2 to 5 mm.).

The difference in the conformation of the elytra is particularly remarkable. It is due to the shape of the body : in *Nesosisyphus* the dorsal part of the hind body is more developed or higher than the ventral part, so that the elytra are more convex, in order to englobe the tergum. At the same time the abdominal sternites are comparatively reduced in height, and the pygidium is therefore shorter, triangular. In *Sisyphus* the tergum is very low, and the elytra are consequently rather flat. The abdominal sternites are considerably developed downwards, with the characteristic elongate and narrow pygidium. This is important to note, because at first sight it might be supposed that in *Nesosisyphus* the elytra with their non-reduced margins are descending lower down on the sternites. Such is not, however, the case, and it appears that the winged members of the genus fly in the same way as *Sisyphus* species—*i.e.* keeping their elytra closed. I have carefully observed individuals of *Nesosisyphus pygmaeus* taking their flight, and could not detect any opening of the elytra. There seems to be only a slight lowering of the abdomen to slip out the wings.

Other distinctions, not mentioned in the above table because they are perhaps less characteristic, also exist between the two genera. In *Sisyphus* the mentum is more hairy, its anterior margin more deeply notched, the last joint of the labial palpi is proportionately smaller, the third joint of the

antennae is less elongate, the metathoracic episternum does not bear the deeply impressed streak, and there are 7 abdominal segments visible laterally, instead of 6, though the first one is fused with the second in certain species. The curious hooked setae which are found on the dorsal surface of most species of *Sisyphus*, if not on all, are replaced in the pubescent species of *Nesosisyphus* by simple decumbent hairs. The hollow sharply defined lateral area of the pronotum noted above as a characteristic of *Sisyphus* is not, however, found throughout the genus. In some large African species (e.g. *S. spinipes* Thunberg) it is obsolete, but there is no lateral line as in *Nesosisyphus*. Mr. Arrow informs me that in his Ceylonese *S. tarantula* Arrow, the lateral ridge of the thorax is also absent, although slight vestiges at each end indicate its former existence. This species is otherwise quite different from the Mauritian ones.

I am not sufficiently acquainted with the male genitalia in the genus *Sisyphus* as a whole to enable me to draw any useful parallel between the two genera. I have only examined those of *S. longipes* Olivier, from India, which I have previously figured (1939). In this species the basal piece is shorter than the lateral lobes instead of being longer, as in *Nesosisyphus* species.

Inside this new genus it would seem that speciation has proceeded with little or no alteration of this organ. It is one of the not uncommon instances of taxonomic species which show marked external differences with an almost similar genital structure. I have been unable to detect any appreciable difference in the aedeagus of three of the species (*vicinus*, *regnardi*, *rotundatus*), though in the fourth one (*pygmaeus*) a distinct divergence is obvious.

Key to the species of *Nesosisyphus*.

1. Clypeus with a semi-circular incision, bidentate; hind legs with tarsus longer than tibia; hind-wings fully developed . . . . . 2.
–. Clypeus with an angular straight-bottomed incision, quadridentate; hind legs with tarsus shorter or equal to tibia; hind-wings vestigial . . . 3.
2. Body glabrous, shining, with elytra bicolorous, smooth; hind tarsus with joints V to II + half I together equal to length of tibia (ratio tarsus to tibia = 1·15). Size comparatively large (3·4 to 4·4 mm.) *vicinus* Vinson.
–. Body pubescent, comparatively opaque on account of sculpture; elytra unicolorous, with surface uneven owing to strong development of interstices and apical calli; hind tarsus with joints V to II together equal to length of tibia (ratio tarsus to tibia = 1·30). Size smaller (2 to 3 mm.) **pygmaeus** sp. n.
3. Elytra with apical and humeral calli quite distinct; hind tarsus equal to tibia; hind-wings about two-thirds length of elytra . . *regnardi* Alluaud.
–. Elytra without apical or humeral calli, posterior declivity regularly rounded and hind body shortened; hind legs comparatively short, with tarsus shorter than tibia (ratio 0·89); hind-wings reduced to rudiments **rotundatus** sp. n.

Nesosisyphus vicinus (Vinson).

1939. *Sisyphus vicinus* Vinson, *Proc. R. ent. Soc. Lond.* (B) **8** : 36, figs. 1–1h.

Length : 3·4–4·4 mm.; max. width : 2·0–2·7 mm.

The humeral and apical calli are well developed, though the latter are less prominent than in *N. regnardi* Alluaud. There is a fairly broad, shallow depression on the posterior half of each elytron and the interstices are comparatively flat. The hind body is relatively elongate, the average ratio of the elytra to the pronotum being 1·8 : 1. As noted in the key, the hind tarsi are longer than the tibiae, the ratio being 1·15 to 1. The hind-wings are about three times the length of the elytra.

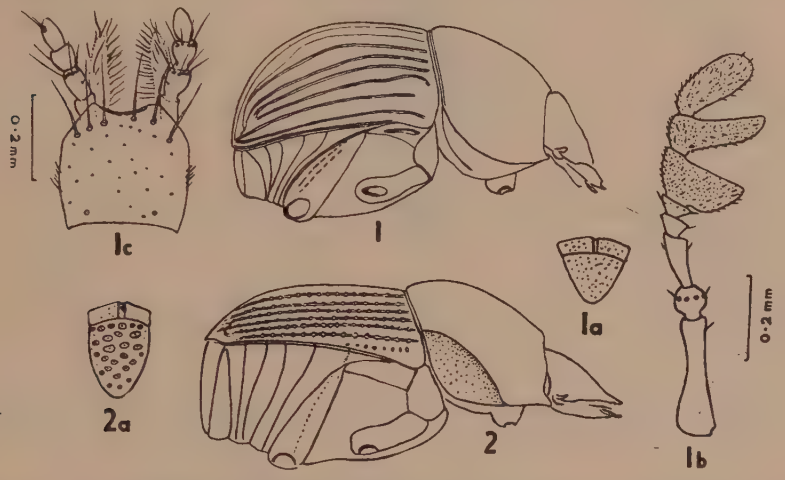
MAURITIUS : Distributed on the wooded mountain slopes of the elevated south-western plateau of the island : Trou-aux-Cerfs, Black River Gorges near Maccabé forest, Mt. Cocotte, Grand Bassin peak, Bassin Blanc. Also in the centre : Piton du Milieu. On monkey excreta and on fowl dung bait.

Details of the above localities will be given in a future paper and it is intended to publish also a map showing the distribution of the various species.

Nesosisyphus pygmaeus sp. n.

Length : 2·3–3·2 mm.; max. width : 1·3–1·8 mm.

Black, moderately shining, with a very slight, almost imperceptible metallic reflection on head and pronotum; elytra with apical calli protruding behind and surface costulate on account of strongly convex interstices. Pronotum and elytra bearing short, sparse, white, decumbent hairs.



FIGS. 1–2.—1, *Nesosisyphus regnardi* (Alluaud), lateral view; 1*a*, pygidium; 1*b*, *Nesosisyphus vicinus* (Vinson), antenna; 1*c*, labium with mentum; 2, *Sisyphus* (probably *schaefferi* L.), lateral view; 2*a*, *Sisyphus longipes* (Olivier), pygidium.

Head densely punctate, the punctures touching each other, a small impunctate area on each side in front of the eyes; clypeus bidentate, the incision between the teeth semicircular; eyes comparatively large, quite conspicuous on the upperside, lower part as large as antennal club. A few erect white hairs on clypeal area.

Pronotum strongly and closely punctate, punctures rather confluent and oblique; median longitudinal groove from base not quite reaching half length of pronotum, evenly impressed and with the punctures close to it.

Elytra twice length of pronotum; interstices very convex, sutural, basal half of 3rd, apical half of 5th, and 7th for a short distance a little below humeral callus especially prominent, 5th slightly protruding behind; on the posterior declivity of the elytron, just on the apex, there is another smaller tubercle which is the prolongation of the 3rd interstice. Humeral and apical calli prominent, the latter formed by the 3rd, 4th and 5th interstices. In the apical region the 2nd interstice and its two accompanying striae are deeply set on account of the subjoined callus. A slight, shallow but conspicuous depression on the apical half of each elytron, bearing on interstices 2 to 4. Striae impunctate or feebly so, interstices a little asperately punctate, bearing a sparse, short decumbent pubescence just visible at × 30. Surface of elytra without microsculpture.

Hind legs with tarsi longer than tibia, the ratio being 1·30 : 1.

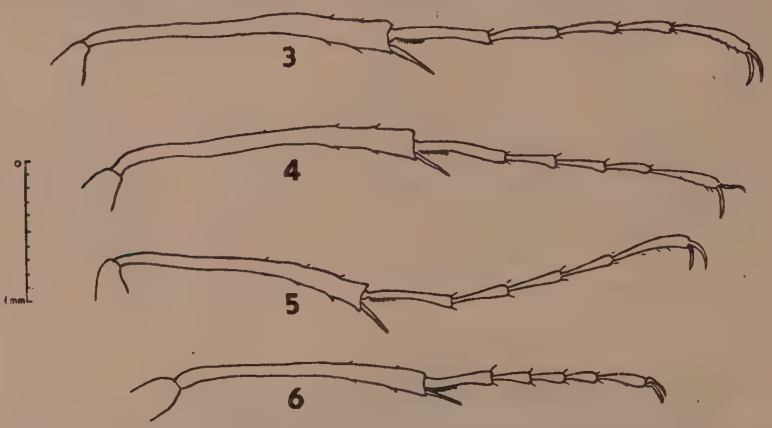
Hind-wings fully developed, three times length of elytra.

Aedeagus as figured, with the internal sword-like sclerotised structure rather shortened and with the " blade " straight.

No secondary sexual characters have been detected.

Mauritius : Mt. Ory Range, northern and southern slopes. A large number of examples, over one hundred, collected on monkeys' excreta and in traps baited with fowl dung. October–December 1944 and December 1945.

Very distinct from the other species by its small size and costulate elytra. Its nearest relative appears to be *N. vicinus*, which has in common the semi-circular clypeal incision, fully developed hind-wings and long hind tarsi.



Figs. 3–6.—Hind leg of *Nesosisyphus*: 3, *N. vicinus* (Vinson); 4, *N. regnardi* (Alluaud); 5, *N. pygmaeus* sp. n.; 6, *N. rotundatus* sp. n.

Nesosisyphus regnardi (Alluaud).

1898. *Sisyphus regnardi* Alluaud, *Bull. Soc. Zool. Fr.* **23** : 64, fig.
1935. *Sisyphus regnardi* Alluaud, Paulian, *Bull. Acad. Malgache* **18** : 127.
1939. *Sisyphus regnardi* Alluaud, Vinson, *Proc. R. ent. Soc. Lond.* **8** : 36, figs. 2–2d.

Length : 3·3–4·9 mm.; max. width : 1·8–2·7 mm.

In spite of the strong reduction of the hind-wings, which only equal three-fourths of the elytra in length, the humeral calli are well developed. They are generally reddish-yellow. The apical calli are prominent, though not protruding behind as in *N. pygmaeus*. The apical half of each elytron bears a shallow depression, and this combined with the callus produces a rather uneven appearance. The interstices are rather flat, except the sutural ones, which are together particularly convex in their apical half. The hind-body is proportionately shorter than in the preceding species, the average ratio of the elytra to the pronotum being 1·5 : 1. In the hind legs the tarsi equal the tibiae in length.

Though more pubescent than the other three species, the term " strongly pubescent " I used for it in 1939 might be misleading.

♂. The hind femora are hollowed beneath on their apica lthird, and this lower or interna margin is more or less finely crenulate.

♀. Hind femora not hollowed beneath but simply flattened.

Mauritius : Confined to the Moka mountain range in the north-west of the island. The definite points where it has hitherto been taken on this range

are : Mt. Pouce, Mt. Ory (southern slope, where it occurs simultaneously with *N. pygmaeus*) and Mt. Calebasses (towards the eastern extremity of the Moka range). Taken on monkey excreta and on fowl dung bait. A large number of examples.

The type, which is in the Paris Museum, is from the Pouce mountain (*Gabriel Regnard*, 11.iii.1897).

Nesosisyphus rotundatus sp. n.

Length : 3·5–3·9 mm.; max. width : 2·1–2·4 mm.

Black, shining, moderately pubescent, with a slight metallic reflection on head and pronotum ; elytra comparatively smooth, without calli or depressions ; hind-body shortened, globose.

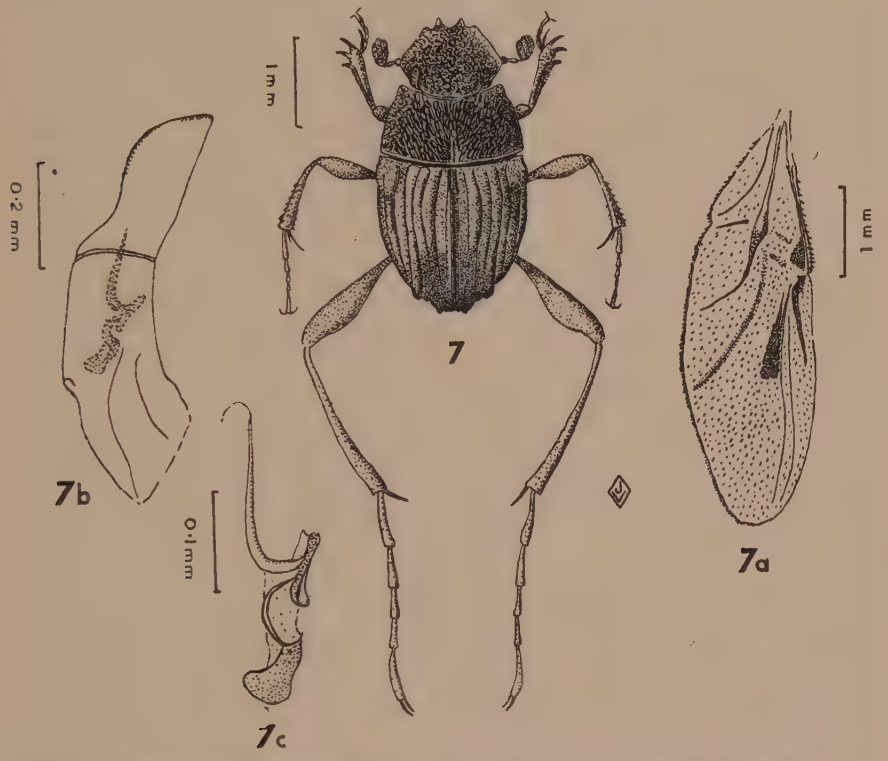


Fig. 7.—*Nesosisyphus pygmaeus* sp. n.; 7*a*, hind-wing; 7*b*, aedeagus, lateral view; 7*c*, armature of internal sac.

Head closely punctate, except near the edges, which are nearly smooth; clypeus quadridentate, median pair of teeth sharp, separated by a straight-bottomed incision, lateral pair shorter and quite blunt. Eyes reduced, almost indistinct on the upperside, inferior portion much smaller than antennal club.

Pronotum strongly punctate, punctation confluent and oblique, diverging from the middle of the base; median longitudinal groove not reaching half length of pronotum, edges impunctate.

Elytra a little shorter than 1½ times length of pronotum (average ratio 1·4 : 1); interstices feebly convex, each bearing two rows of a short decumbent pubescence; surface of elytra comparatively smooth, without humeral and apical calli and without the shallow

depressions found in the other species. Striae distinctly though rather coarsely punctate. No visible microsculpture.

Hind-wings reduced to very small rudiments about one-third length of elytra.

Hind legs comparatively short, with tarsi shorter than tibiae, the ratio being 0·89 : 1.

Aedeagus, as figured, with the internal sword-like structure elongate and arcuate as in *regnardi* Alluaud and *vicinus* Vinson.

♂. Some examples have the hind femora finely crenulate along their posterior edge and a little hollowed beneath as in *regnardi*. This character was observed in the example dissected, which was a male, so that it is probable that it is a secondary sexual character.

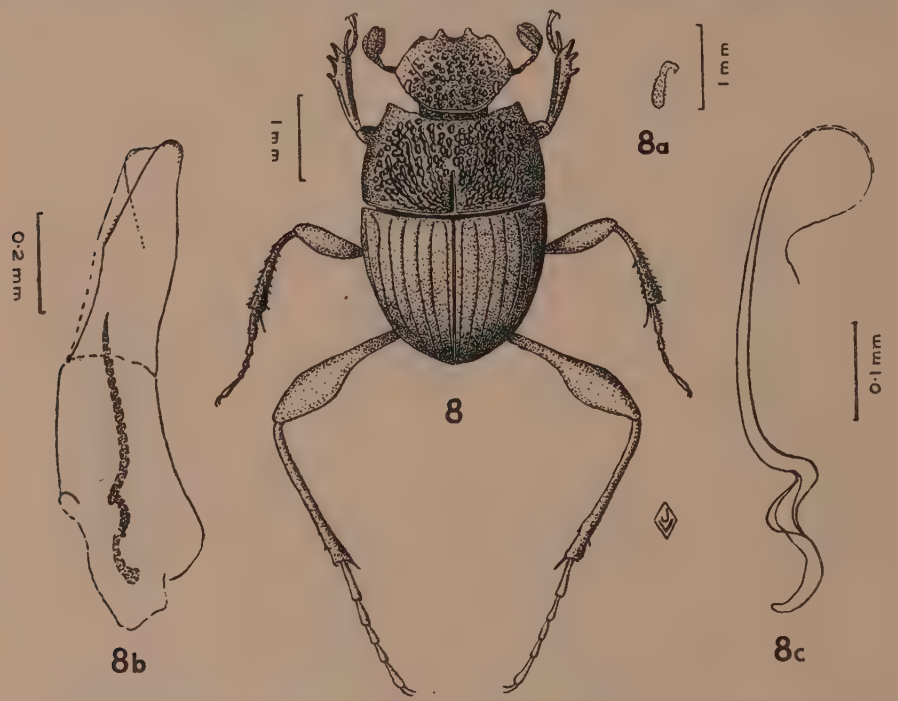


FIG. 8.—*Nesosisyphus rotundatus* sp. n.; 8*a*, hind-wing rudiment; 8*b*, aedeagus, lateral view; 8*c*, armature of internal sac.

MAURITIUS: Mt. Ory, southern slope, i.1940, 3 ex.; at 1250 ft. elevation, 15.x.1944, 1 ex.; at 1450 ft., 18.xi.1944, 2 ex.

Extremely close to *N. regnardi*, from which however, it is readily distinguishable by the characters given in the key. The differences are without intergradation, and so sharp that I have no hesitation in considering this a good species, as understood by systematists.

The male genitalia in the two species are apparently alike, but, as already said, it seems that these organs are little or not at all affected by speciation in this group of beetles.

The punctation of the metasternum seems to be lighter in *rotundatus*: in the type I have counted about 55–60 punctures, whereas in several examples of *regnardi* I have found approximately 110–120 punctures. But as this character seems to be rather variable, I have not made use of it.

N. rotundatus has hitherto been found only on the meeting ground of *N. regnardi* and *N. pygmaeus*, and this is an interesting point to note.

HYLAEOTHEMIS INDICA, A NEW SPECIES OF ORIENTAL LIBELLULINE (ORDER ODONATA)

By Lt.-Col. F. C. Fraser, I.M.S. Retd., F.R.E.S.

Recently I have been able to acquire the type of *Hylaeothemis gardneri* Fraser, from the Forest Research Institute, Dehra Dun, and it is now deposited in the British Museum (Natural History). The Indian climate and lack of skilled care militate against the maintenance of insect collections and the present example epitomises what usually happens to them : the head is missing, as also most of the legs, the apical third of the left hind-wing and the 5th segment of the abdomen, the remaining segments of which are gummed on to the pith mount. Albeit, the type is still in good enough preservation to make it useful for future study, and it bears four labels : 1. " TYPE," 2. " Naga Hills, Assam, 3000′, S. N. Chatterjee, 9.iv.1924," 3 (TYPE) (this in my own handwriting), and 4. " *Hylaeothemis gardneri* Fraser, Major Fraser det." I have taken the opportunity to make a fresh examination of this specimen, and find that although my original description was correct, I have failed to stress the importance of the narrow discoidal field of the fore-wings with its parallel sides and single row of cells which extends nearly to the border of the wing. This character of the discoidal field agrees with *H. fruhstorferi* Karsch and *clementia* Ris, but not with the forms from Western India which Ris and I described under the name of *fruhstorferi*, in which the sides of the discoidal field are widely divergent and in which the initial single row of cells changes early to a double one. This and other differences were commented upon by Dr. Ris (1913), and yet, contrary to his usual acumen, he went out of his way laboriously to explain them away rather than create a new species. He said that fig. 30bis had been made from a set specimen the wings of which were not quite level in the field of vision, so that the wing appeared to be narrower than it actually was. Moreover, fig. 610 had been made from a pressed Canada Balsam specimen of the female sex, and this sex usually had broader wings than the male. Whilst these arguments explained away the differences in the breadth of the two wings, a character of minor importance, it failed completely to explain the wide variations in the venations. Dr. Ris suggested that these might be mere variations such as are found in the genus *Allorhizucha* Karsch (discoidal cell variation) and in *Eothemis* Ris (variations in the shape of the subtrigone), but he had only the single female specimen on which to base his arguments. I have been fortunate enough to take at least one hundred specimens of this form from the Western Ghats of India, including both sexes, and I find that all the characters of Ris' Palni Hills specimen are constant in my own (from the Palni, Nilgiri, Coorg, Annaimallai and Travancore Hills). There can therefore be no doubt that this form is specifically distinct from *fruhstorferi* Karsch, and I name it *H. indica* sp. n.

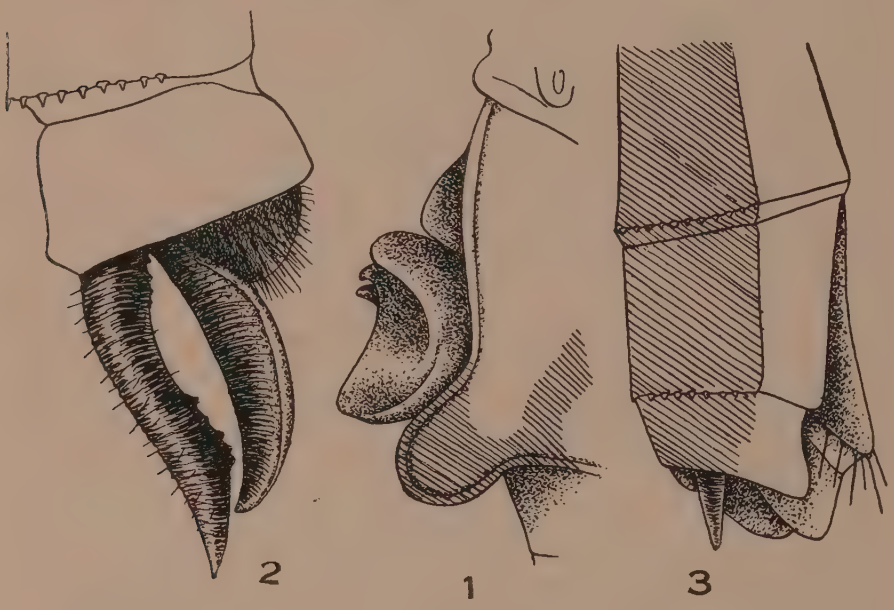
Hylaeothemis indica sp. n.

Hylaeothemis fruhstorferi Ris (*nec* Karsch), 1913, *Cat. Coll. Selys, Libellulinen* **16** : 1050 (♀, Palni Hills, South India).

Hylaeothemis fruhstorferi Fraser (*nec* Karsch), 1918, *J. Bombay nat. Hist. Soc.* **25** : 384, 621 (♂ and ♀ described, Nilgiri Hills, South India).

PROC. R. ENT. SOC. LOND. (B) 15. PTS. 7–8. (AUG. 1946.)

Male. Abdomen 23–32 mm. Hind-wing 28–32 mm. Head : labium yellowish, middle lobe and borders of the lateral broadly black; labrum citron-yellow becoming bluish in very old specimens, broadly bordered anteriorly and bisected with black; face citron-yellow, frons and vesicle metallic-blue or dark greenish-blue, occiput black. Eyes dull bottle-green during life, paling to greenish beneath. Prothorax black marked with pale blue as follows : the anterior and posterior lobes and an angulated spot on each side of middorsum of middle lobe. Thorax black, also marked with blue as follows : a fine line running parallel and close to each side of the middorsal carina, the alar sinus, an irregular, narrow and slightly sinuous humeral stripe; the sides broadly blue traversed obliquely by a narrow black stripe on the postero-lateral suture which bifurcates to enclose a blue spot on the hind trochanter. In tenerals the blue is replaced by bright citron yellow, and this latter colour persists in the female almost throughout adult life. The lower parts of sides and beneath thorax in elderly adults are thinly pruinosed. Legs black pruinosed thinly on the flexor surface.



Figs. 1–2.—Genitalia and anal appendages of *Hylaeothemis indica* sp. n. ♂.
Fig. 3.—Genitalia of ♀ seen in profile.

Abdomen black marked with pale blue as follows : a triangular spot on dorsum of segment 1 with its apex to base of segment; a small rounded spot on each side of this same segment; segment 2 with a longitudinal narrow middorsal stripe and an elongated spot on each side; segments 3 to 6 with parallel subdorsal longitudinal stripes which are bisected transversely by the jugal suture so as to form a short basal spot and an elongated or linear postbasal; segment 7 almost entirely blue on dorsum, the middorsal carina black and separating the blue into two oval dorsal longitudinal spots which together form a conspicuous " recognition mark." Remaining segments black, unmarked. Anal appendages black; superiors as long as segment 9, cylindrical, acuminate at apex, beneath which the appendage is markedly dilated to form a robust ventral spine, which is itself beset with 4 or 5 other minute spines; near the base of appendage, on its lower outer side, a series of 3 or 4 small minute spines. Inferior appendage slightly shorter than superiors, of the usual triangular curved shape. Genitalia differing from that figured for *H. clementia* Ris in Ris by the more rounded lobe,

the hamules deeply cupped on the outer surface and without the deep, narrow ventra notch (fig. 1). Wings hyaline or in the form *apicalis* Fraser, with the apices infuscated more or less deeply to as far as the outer or even inner end of pterostigma. Nodal index :— $\frac{8/9-14/16}{9-12/15}$, discoidal field of fore-wing begins with a single row of cells to as far as inner end of bridge, and then changes to a double row and ends on border of wing with MA and CuP separated by as many as 6 or 7 cells, that is to say, the discoidal field is considerably dilated towards the border of wing, thus differing strongly from all other species of the genus in which the discoidal field is single-celled almost to border of wing. Anal-loop in hind-wing made up of 4 to 5 cells; normally 2 cubital nervures in all wings, but sometimes 3 in the fore-wings; all hypertrigones and discoidal cells of hind-wings traversed once. Pterostigma dark ochreous between black nervures or entirely black in old adults.

Female. Abdomen 24–26 mm. Hind-wing 29–33 mm.

Closely similar to the male, and the markings entirely similar, although more often retaining the primitive citron colour until very late in life. A more robust insect than the male. Vulvar scales forming a strong slightly projecting obtusely pointed keel the border of which is fringed by some 7 or 8 long stiff vibrissae. Anal appendages shortly conical, black.

Habitat : I took this species first in the bed of the Coonor River at Burliyar, Mettupalayam Ghat, Nilgiri Hills, S. India, 3000 ft. to 3500 ft. Thereafter I found it frequently both in the Nilgiri and Malabar Wynaad, Annaimallai Hills, Coorg and Travancore. It is usually found resting on the broad leaves of arums or ferns in swamps beside streams and, in the early stage, when the markings are bright yellow, closely resembles Gomphines, for which they were frequently mistaken.

In my key to the species of the genus given in the *Fauna of British India*, I stated that segment 7 in *H. gardneri* Fraser was without a dorsal marking : this is an error and due to my misreading the original description where the marking is given as lateral. A revised key for the recognition of all four known species is now given.

Key to Species of genus *Hylaeothemis*.

1. Discoidal field of fore-wing dilating strongly towards the border of wing and made up of a single row of cells to as far as the inner end of bridge only : fore-wing of male without a small opalescent spot beneath pterostigma. Race *apicalis* with the apices of wings in both sexes broadly infuscated dark brown . . . . . *indica* sp. n.

   Discoidal field of fore-wing not dilated and made up of a single row of cells to as far as the level of nodus : fore-wing of male with or without a small opalescent spot beneath pterostigma . . . . . 2.

2. The space between Rii and Riii 2 cells deep to nearer nodus than pterostigma : anal-loop 4-celled : an opalescent spot beneath pterostigma of fore-wing . . . . . *fruhstorferi* Karsch.

   The space between Rii and Riii 2 cells deep to midway between nodus and pterostigma or nearer the latter. No opalescent spot beneath pterostigma of fore-wing . . . . . 3.

3. Discoidal field only 1 cell wide to well beyond the level of nodus : 2 rows of cells between Rii and Riii to midway between nodus and pterostigma : anal-loop 3-celled . . . . . *gardneri* Fraser.

   Discoidal field only 1 cell wide to level of nodus : 2 rows of cells between Rii and Riii from close to pterostigma only : anal-loop obsolete *clementia* Ris.

The *type* and *allotype* of the new species *H. indica* will be deposited in the British Museum (Natural History).

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Ris, 1913, *Cat. Coll. Selys, Libellulinen*, **16** : 1050 (*H. fruhstorferi* Ris *nec* Karsch, ♀ described).
Fraser, 1918, *J. Bombay nat. Hist. Soc.* **25** : 384, 621 (*H. fruhstorferi* Ris *nec* Karsch redescribed).
Fraser, 1924, *Rec. Indian Mus.* **26** : 425, 430 (Distribution of *H. fruhstorferi* Ris *nec* Karsch).
Fraser, 1931, *Rec. Indian Mus.* **33** : 446 (Distribution of *H. fruhstorferi* Ris *nec* Karsch).
Fraser, 1936, *Fauna British India* **3** : 261 (*H. fruhstorferi* Ris *nec* Karsch redescribed).

THE GENUS *MYLOTHRIS* HÜBNER (LEP. PIERIDAE). A CORRECTION

By G. Talbot, F.R.E.S.

I take the earliest opportunity of correcting an error which appeared in my paper on the genus *Mylothris* Hübner published in 1944 (*Trans. R. ent. Soc. Lond.* **94** : 155–185, pl. i). I am indebted to Dr. van Son, of the Transvaal Museum, for pointing out the error in question.

The figures 2 and 26 on pl. i should be transposed. Fig. 2 represents *M. bernice rubricosta* Mabille and fig. 26 *M. trimenia* Butler. Similarly, the descriptions of genitalia referring to these two species on pp. 161 and 183 should also be transposed.

The constitution of the groups is not thereby altered and will remain as given unless biological evidence is later adduced to show otherwise. In the systematic arrangement the *bernice* group will come first and the *trimenia* group last.

The original preparations or drawings of these two species had, in some unaccountable way, become mixed and wrongly labelled. They are absent from the original series, made at the Hill Museum, now in the British Museum (Natural History).

I am grateful to Dr. A. S. Corbet, of the British Museum, for making new preparations and confirming Dr. van Son's findings.

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